REMARKS

The title and abstract have been amended to conform more closely to the pending claims. Inasmuch as 37 CFR 1.121 does not appear to prescribe how to amend an abstract of a U.S. patent application, Applicants' Attorney has utilized a reasonable technique to revise the present abstract.

The specification has been revised to improve the grammar and clarity and to correct various self-evident errors in reference-symbol usage, figure identification, typing, singular-versus-plural case, and punctuation. On pages 21 and 39, the statements in paragraphs 71 and 120 that each light-emissive region 66 "consists of multiple light-emissive phosphor particles 72 distributed generally randomly over faceplate 64" has been clarified to provide that the particles in each light-emissive region 66 are distributed generally randomly over the faceplate portion underlying that region 66.

Starting with paragraph 152 on page 53, the notation "nm" for the average refractive index of the mth intensity-enhancement coating has been changed to "n_m" consistent with the usage elsewhere of the letter "n" followed by a subscript to indicate the average refractive index of a particular intensity-enhancement coating. Using this revised terminology, the statements in paragraph 152 that "Let r_i represent the ratio n_i/n_{i+1} where i is an integer varying from 1 to m-1, n_i is the average refractive index of the ith coating, and nm is the average refractive index of the mth coating" and that "Furthermore, let r_m represent the ratio nm/n_I" have been respectively corrected to recite that "Let r_i represent the ratio n_i/n_{i+1} where i is an integer varying from 1 to n-1, n_i is the average refractive index of the ith coating, and n_{i+1} is the average refractive index of the (i+1)th coating" and that "Furthermore let r_m represent the ratio n_m/n_I where n_m is the average refractive index of the mth coating".

Paragraph 164 on page 58 has been revised to provide that U.S. patent application 09/823,872 has issued into U.S. Patent 6,630,786 B2. On pages 66 and 79, the term "or/and" in the statements in paragraphs 187 and 223 that light-emitting devices 100 and 128 enhance "the image intensity or/and the optical contrast" has been changed to "and" since the later text indicates that light-emitting devices 100 and 128 provide both enhanced image intensity and enhanced optical contrast.

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Turning to the claims, Claim 1 has been amended. Claims 29 - 96 have been canceled. Claims 97 - 140 have been added. Accordingly, Claims 1 - 28 and 97 - 140 are now pending.

The drawings have been objected to under 37 CFR 1.84(b)(5) as not including reference symbol "74" in Fig. 6d in accordance with page 34, paragraph 107, of the specification.

The Amendment submitted 18 April 2002 to make changes to the drawings included adding reference symbol "74" to Fig. 6d. If the 18 April 2002 Amendment has not reached the PTO file for the present application, enclosed as Exh. A is a copy of the 18 April 2002 Amendment, including a copy of the accompanying red-annotated drawing sheets.

Further enclosed as Exh. B is a copy, as returned by the PTO, of the acknowledgement postcard which accompanied the 18 April 2002 Amendment. As shown on Exh. B, the acknowledgement postcard bears the 18 April 2002 OIPE stamp of the PTO, thereby indicating that the PTO did receive the 18 April 2002 Amendment. If not previously entered, the 18 April 2002 Amendment should now be entered. In light of the changes requested in the 18 April 2002 Amendment, the objection to the drawings under 37 CFR 1.84(b)(5) should be withdrawn.

The drawings have been objected to under 37 CFR 1.84(p)(4) on the grounds that both of reference symbols "66" and "72" are utilized to identify the phosphor particles in Figs. 6c - 6e, 7, 8, 11, 12, 13b - 13e, 14a - 14e, 15, 16, 17, and 18. This objection is respectfully traversed.

Reference symbol "66" is utilized in the application to identify light-emissive regions. Reference symbol "72" identifies phosphor (light-emissive) particles. Each light-emissive region 66 is formed with a plurality of phosphor particles 72 whose outer surfaces are partially covered with coatings according to the invention. Although the lead lines for reference symbols "72" and some of reference symbols "66" are attached to phosphor particles in the drawings, this arises because each region 66 contains a plurality of particles 72 and not because reference symbols "66" and "72" are improperly employed to designate the same item in the drawings. Reference symbol "66" in each objected-to drawing does indeed generally indicate a light-emissive region.

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Aside from the spaces between phosphor particles 72 in each light-emissive region 66, the only components of each region 66 are its particles 72 and the overlying particle coatings. The lead line for each reference symbol "66" of each light-emissive region 66 could terminate at the space between particles 72 in that region 66. However, the termination point for the so-modified lead line for each light-emissive region 66 would be somewhat misdescriptive because the function of each region 66 is provided largely by its particles 72 and their overlying coatings, and not by the space between particles 72 in each region 66. In light of this, one of the lead lines for reference symbol "66" in each figure having two occurrences of reference symbols "66" terminates at a particle 72 in one region 66 in that figure while the other lead line for reference symbol "66" in that figure terminates in the space between particles 72 in another region 66.

The drawings could also be modified by attaching the lead line for reference symbol "66" in each of the objected-to drawings to notation, e.g., a double-headed arrow, which indicates the lateral extension of a region 66. Unfortunately, the so-modified drawings would likely become more difficult to understand.

If the Examiner has a suggestion for modifying the drawings to utilize reference symbol "66" to identify a light-emissive region in a manner that is clear and does not cause the drawings to become misdescriptive or make them difficult to understand, Applicants' Attorney requests the Examiner to provide that suggestion to Applicants' Attorney. Absent such a suggestion, Applicants' Attorney believes that the objection to the drawings under 37 CFR 1.84(b)(4) should be withdrawn because (a) the lead lines for certain of reference symbols "66" and "72" are attached to phosphor particles because each light-emissive region 66 contains a plurality of light-emissive particles 72, (b) reference symbol "66" does generally indicate a light-emissive region, and (c) adjusting how reference symbol "66" is employed to identify a light-emissive region would make the drawings misdescriptive or harder to understand.

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The Examiner has requested that the status of additional U.S. patent applications 09/087,785 and 09/823,872 cited (in paragraphs 158 and 164) on pages 56 and 58 of the specification be updated to provide the respective patent numbers for these two additional applications. As mentioned above, paragraph 164 on page 58 has been revised to provide the patent number for application 09/823,872. As to application 09/087,785, its patent number

was inserted in paragraph 158 on page 56 by way of the Amendment submitted 27 March 2002.

The specification has been objected to as having several "informalities", basically incorrect reference symbols and figure numbers.

All of the objected-to items in the specification have been modified in the manner indicated by the Examiner except for changing "Fig. 13d" to "Fig. 13c" in paragraph 216 on page 77. Paragraph 216 deals with the formation of contrast-enhancement coatings 114 first shown in Fig. 13d. Since contrast-enhancement coatings do not appear in Fig. 13c, the reference in paragraph 216 to "Fig. 13d" is correct.

In paragraph 216, the sentence referring to "Fig. 13d" states that "The angled deposition is performed at tilt angle α to a line, represented by line P in Fig. 13d, extending generally perpendicular to faceplate 64". Line P and angle α do not appear in Fig. 13d. Accordingly, Applicants' Attorney has requested in the accompanying Amendment to the Drawings that line P and angle α be added to Fig. 13d in the manner shown in Fig. 13c.

Claims 1, 2, 5, 7, and 8 have been rejected under 35 USC 102(b) as anticipated by Petersen et al. ("Petersen"), U.S. Patent 5,844,361. This rejection is respectfully traversed in view of the revision to Claim 1.

Petersen, cited in the Background Art section of the specification of the present application, chemically treats the outside surfaces of core phosphor particles 212, 312, 412, or 512 in the light-emissive regions of a light-emitting device of a flat-panel CRT display in order to reduce outgassing from the phosphor particles. Fig. 4 of Petersen illustrates an example in which the outside surface of each core particle 412 is fully covered (encapsulated) with coating 414. Fig. 5 of Petersen illustrates an example in which the outside surface of each core particle 512 is partially covered with coating 514.

With respect to independent Claim 1, the Examiner states that "Petersen discloses a structure (see Fig 1-5) comprising a plate (170, 270, 370, 470, 570), a light emissive region (the lower surface of the plate) overlying light transmissive material (plates 170-570, made of glass, see lines 9-11 of column 2) and comprising plurality of light-emissive particles (phosphor particles 212-512 of Figs 2-5) each having an outer surface and a group of coatings (514 of Fig 5, lines 36-40 of column 6) each generally conformally overlying part of the outer surface of a corresponding different one of the light emissive particles (512) so as to

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be spaced apart from where that light emitting particle (512) is closest to the plate 570 (see Fig 5, and lines 27-32 of column 5)".

The Examiner further states that "Though Petersen does not explicitly mention that the coating 514 is light reflective, it is inherent since Petersen teaches stannic oxide (see line 40 of Column 6) as a material for the coating, which is an infrared light reflective material".

Figs. 2 - 5 of Petersen deal with metal sulfide phosphors. In the long paragraph starting at the top of col. 6, Petersen first states at lines 1 - 3 that "An approach similar to that described with respect to FIGS. 2-5 is applicable to the formation of a stabilized oxide phosphor, in accordance with the invention". Petersen later discusses stannic oxide at lines 36 - 40 in stating that "For example, the stabilized surface may be formed by encapsulating the cathodoluminescent oxide phosphor with a stable oxide being selected from the group consisting of gallates, chromates, vanidates, silicates, and stannic oxide".

In a similar vein, Petersen further states at lines 40 - 45 of col. 6 that "Another suitable method for forming a stabilized oxide phosphor includes modifying the surface of the cathodoluminescent oxide phosphor" and that "For example, the surface can be reacted with an oxide being selected from the group consisting of HfO_2, TiO_2, ZnO_2, SnO_2, GeO_2, Al_2O_3, and MgO" where "SnO_2" is the chemical formula for stannic oxide. Petersen further discusses stannic oxide at lines 55 - 58 in stating that "A stabilized oxide phosphor having a conductive stabilized surface may be formed, in the manner described with respect to FIG. 4 by encapsulating a cathodoluminescent oxide phosphor with stannic oxide". Petersen thus discloses stannic oxide, along with other oxides such as gallates and chromates, as encapsulants for oxide phosphors in light-emissive regions of a light-emitting device of a flat-panel CRT display.

Stannic oxide indeed appears to be highly reflective of infrared radiation, often referred to as infrared "light", while being largely transmissive of "visible" light. Enclosed is a copy of an article entitled "Philips SO-X with Tin Oxide Film". The second paragraph of this article specifies that stannic oxide "has an excellent infrared reflectivity of 80% while also transmitting some 89% of the sodium yellow light". Another Philips article, copy also enclosed, entitled "SOX Low Pressure Sodium with IR Coating" similarly indicates that stannic oxide has high infrared reflectivity while being largely transparent to visible light.

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Unfortunately, neither Philips article bears a date which clearly makes that article prior art to the present application. The article entitled "SOX Low Pressure Sodium with IR Coating" appears to be dated 19 September 2003 and thus subsequent to the 30 March 2001 filing date of the present application. The article entitled "Philips SO-X with Tin Oxide Film" appears to be a datasheet or to be derived from a datasheet. Although the article entitled "Philips SO-X with Tin Oxide Film" may have been first published well before the filing date of the present application, the article is undated. Accordingly, neither of these Philips article is suitable for citation in a (substitute) PTO Form 1449 and subsequent listing as a "Reference Cited" in the patent that issues on the present application.

If the Examiner is aware of a reference which is clearly prior art to the present application and which provides that stannic oxide is highly reflective of infrared light (or radiation), it would be appreciated if the Examiner would cite that reference in a PTO-Form 892 (or equivalent PTO form) so that the reference may be listed as a "Reference Cited" in the patent.

Meanwhile, Claim 1 has been amended to recite that the light-reflective coatings are substantially reflective of visible light. As indicated above, stannic oxide is highly transmissive of visible light. Stannic oxide thus does not meet the requirement of Claim 1 that the light-reflective coatings be substantially reflective of visible light. Accordingly, Claim 1 is not anticipated by Petersen based on the inherent characteristics of stannic oxide as cited in Petersen.

Furthermore, nothing in Petersen would provide a skilled in the art with any motivation or incentive to form coatings 514 in the light-emitting device of the flat-panel CRT display of Fig. 5 with material that is substantially reflective of visible light. Attempting to provide core particles 512 with metal that is highly substantially reflective of visible light would not further any of the purposes that Petersen recites for its flat-panel CRT displays. Consequently, Claim 1 is patentable over Petersen.

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Claims 2, 7, and 8 all depend (directly or indirectly) from Claim 1. Hence, Claims 2, 7, and 8 are patentable over Petersen for the same reasons as Claim 1.

Claims 3, 4, and 6 have been indicated as being allowable if rewritten in independent form. Claims 3, 4, and 6 all depend (directly or indirectly) from Claim 1. Since amended

Claim 1 has been shown to be patentable over Petersen, Claims 3, 4, and 6 are allowable in their present form.

New Claims 97 and 98 both depend (directly or indirectly) from Claim 1. Hence, dependent Claims 97 and 98 are also allowable.

As to Claim 5 which was rejected as anticipated by Petersen, Claim 5 depends from Claim 4 which the Examiner has indicated as being allowable if rewritten in independent form. Accordingly, Claim 5 should probably have been included with Claims 3, 4, and 6 as being allowable if rewritten in independent form. In any event, Claim 5 is allowable in its present form because it depends (indirectly) from Claim 1.

Also, Claim 5 recites that "The light-emissive phosphor particles comprise metal sulfide phosphors". As indicated above, Petersen discloses stannic oxide as a coating for oxide, i.e., metal oxide, phosphors. Nowhere does Petersen appear to disclose or suggest the use of stannic oxide for fully or partially coating metal sulfide phosphors. Petersen thus does not disclose the sulfide phosphor limitation of Claim 5. For this reason, Claim 5 is separately allowable over Peterson.

The allowance of Claims 9 - 28 is noted.

New Claims 97 - 110 variously depend (directly or indirectly) from allowed Claims 9, 13, 15, 17, and 21. Claims 97 - 110 are thus also allowable.

Claim 3, which was indicated as being allowable if rewritten in independent form, recites that "The light-reflective coatings consists largely of metal". New independent Claim 111 constitutes dependent Claim 3 rewritten in independent form as it depended from the original version of Claim 1 subject to the further limitation that the metal of the light-reflective coatings be "non-oxidized" metal. In this regard, Applicants' Attorney notes that stannic oxide has the chemical formula SnO_2. Stannic oxide thus consists of approximately 79% tin and 21% oxygen by weight (or mass). However, stannic oxide is oxidized tin and thus oxidized metal. The recitation in Claim 111 that the "light-reflective coatings consist largely of non-oxidized metal" thereby clearly distinguishes Petersen. Hence, Claim 111 is patentable.

New Claims 112 - 118 all depend (directly or indirectly) from Claim 111. Dependent Claims 112 - 118 are thus patentable.

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New independent Claims 119, 127, and 133 are respective extensions of independent Claims 1, 17, and 21 to the situation in which the claimed structure is recited to have multiple laterally separated light-emissive regions instead of just one light-emissive region as recited in each of Claims 1, 17, and 21. Inasmuch as (a) Claim 1 has been amended to be allowable over Petersen and (b) Claims 17 and 21 have been allowed, new independent Claims 119, 127, and 133 are allowable.

Claims 120 - 126 all depend (directly or indirectly) from Claim 119. Claims 128 - 132 all depend (directly or indirectly) from Claim 133. Claims 134 - 140 all depend (directly or indirectly) from Claim 133. Accordingly, dependent Claims 120 - 126, 128 - 132, and 134 - 136 are allowable.

Please telephone Attorney for Applicant(s) at 650-964-9767 if there are any questions.

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Respectfully submitted,

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